U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

SCIENTIFIC INVESTIGATIONS MAP 2812
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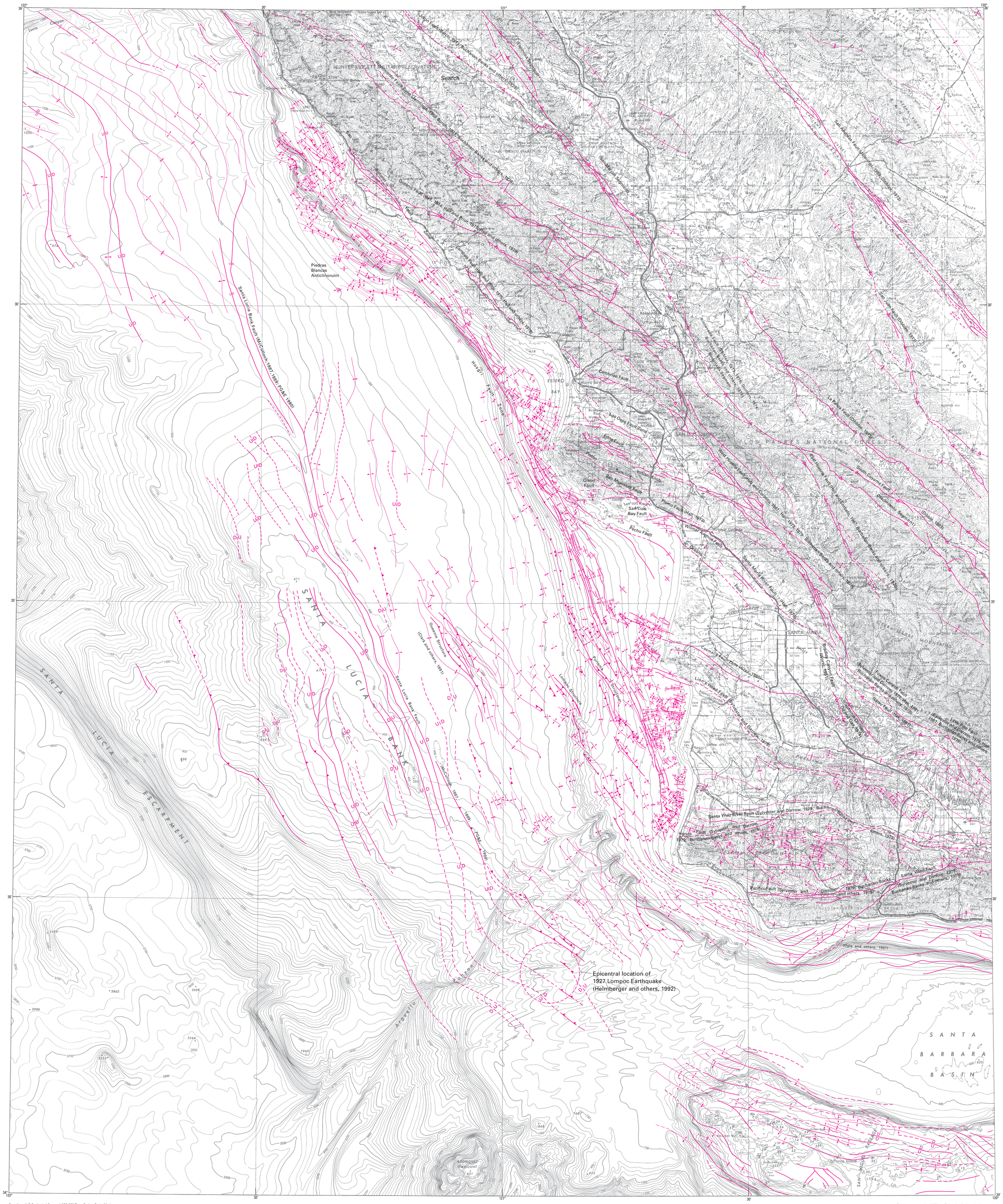

Base from U.S.Geological Survey 1:250,000 Topo Series: Santa Maria, CA 1969; San Luis Obispo, CA; C&G, S 1306N-20 Cape San Martin to Point Conception 1967. Compiled in Base Map Section, Menlo Park, CA. ALFA(57-32) (3-80)

APPROXIMATE MEAN DECLINATION AT CENTER OF MAP

SCALE 1:250 000

Geology mapped by William R. Lettis, Kathryn L. Hanson, Jeffrey R. Unruh, Marcia McLaren, and William U. Savage. Edited by James W. Hendley III

EXPLANATION

OFFSHORE REGION*

- U/D — Active or potentially active high angle fault (sea-floor projection of fault tip where blind or buried)—Deforms early/late Pliocene (2.8–3.4 Ma) unconformity or younger deposits or surfaces; U/D (Up/Down) indicates relative sense of displacement, bar indicates dip direction; dashed where approximately located
- Active or potentially active low angle fault (sea-floor projection of fault tip or leading edge of ramp where blind or buried)—Deforms early/late Pliocene (2.8–3.4 Ma) unconformity or younger deposits or surfaces; teeth indicate dip direction; dashed where approximately locate
- Active or potentially active anticline axial trace (sea-floor projection where buried)—Arrow indicates direction of plunge; dashed where approximately located
- Active or potentially active syncline axial trace (sea-floor projection where buried)—Arrow indicates direction of plunge; dashed where approximately located
- Active or potentially active monocline axial trace (sea-floor projection where buried)—Arrow indicates direction of plunge; dashed where approximately located
- Inactive fault (bold) or fold (light)—Does not deform early/late Pliocene (2.8–3.4 Ma) unconformity; where this unconformity and (or) younger sediments are absent as a result of erosion, structures are mapped as potentially active

ONSHORE REGION*

- Active fault trace—Deforms deposits or surfaces ≤500,000 ka; dashed where approximately located
- Potentially active fault trace—May deform deposits or surfaces ≤500,000 ka; dashed where approximately located
- Inactive active fault trace—Does not deform deposits or surfaces ≤500,000 ka; dashed where approximately located
- Anticline axial trace—Arrow indicates direction of plunge; solid where active or potentially active; dotted where inactive
- Syncline axial trace—Arrow indicates direction of plunge; solid where active or potentially active; dotted where inactive
- Monocline axial trace—Solid where active or potentially active; dotted where inactive

*Note: See text for discussion of mapping techniques and age criteria used to identify fault activity.

COMPILATION SOURCES

Buchanan-Banks, J.M., Pampeyan, E.H., Wagner, H.C., and McCulloch, D.S., 1979, Preliminary map showing recency of faulting on coastal south-central California: U.S. Geological Survey Miscellaneous Field Studies Map MF-910, scale 1:250,000.

Burch, S.H., 1971, Complete Bouguer gravity and general geology of the Cape San Martin, Brysom, Piedras Blancas, and San Simeon quadrangles, California: U.S. Geological Survey Professional Paper 646-A, 12 p.

California Division of Oil and Gas, 1974, California oil and gas fields, Vol. II—south, central coastal, and offshore California: California Division of Oil and Gas Publication No. TR12.

Clark, D.H., Hall, N.T., Hamilton, D.H., and Heck, R.G., 1991, Structural analysis of late Neogene deformation in the central offshore Santa Maria Basin, California: Journal of Geophysical Research, v. 96, p. 6435-6457.

Dibblee, T.W., Jr., 1950, Geology of southwestern Santa Barbara County, California: California Division of Mines and Geology Bulletin 150, 95 p.

Dibblee, T.W., Jr., 1966, Geology of the central Santa Ynez Mountains, Santa Barbara County, California: California Division of Mines and Geology Bulletin 186, 99 p.

Dibblee, T.W., Jr., 1973, Regional geologic map of San Andreas and related faults in Carrizo Plain, Temblor, Caliente, and La Panza ranges and vicinity, California: U.S. Geological Survey Miscellaneous Geologic Investigations Map I-757, scale 1:125,000.

Dibblee, T.W., Jr., 1976, The Rinconada and related faults in the southern Coast Ranges, California and their tectonic significance: U.S. Geological Survey Professional Paper 981, p. 1-55.

Durham, K.L., 1974, Geology of the southern Salinas Valley area, California: U.S. Geological Survey Professional Paper 819, 111p.

Gray, L.D., 1980, Geology of Mesozoic basement rocks in the Santa Maria Basin, Santa Barbara and San Luis Obispo counties, California: San Diego State University, California, unpub. M.S. thesis, 78 p.

Hall, C.A., Jr., 1973a, Geology of the Arroyo Grande 15' quadrangle, San Luis Obispo County, California: California Division of Mines and Geology, Map Sheet 24, scale 1:48,000.

Hall, C.A., Jr., 1974, Geological map of the Cambria region, San Luis Obispo County, California: U.S. Geological Survey Miscellaneous Field Studies Map MF-784, scale 1:24,000.

Hall, C.A., Jr., 1976, Geological map of the San Simeon-Piedras Blancas region, San Luis Obispo County, California: U.S. Geological Survey Miscellaneous Field Studies Map MF-784, scale 1:24,000.

Hall, C.A., Jr., 1978, Geologic map of Twitchell Dam, parts of Santa Maria and Tepusquet quadrangles, Santa Barbara County, California: U.S. Geological Survey Miscellaneous Field Map Studies Map MF-933, 2 sheets, scale 1:24,000.

Hall, C.A., Jr., 1981b, Map of geology along the Little Pine fault, parts of the Sisquoc, Foxen Canyon, Zaca Lake, Bald Mountain, Los Olivos, and Figueroa Mountain quadrangle, Santa Barbara County, California: U.S. Geological Survey Miscellaneous Field Studies Map MF-1285, 2 sheets, scale 1:24,000.

Hall, C.A., Jr., and Corbato, C.E., 1967, Stratigraphy and structure of Mesozoic and Cenozoic rocks, Nipomo quadrangle, southern Coast Ranges, California: Geological Society of America Bulletin, v. 78, p. 559-582.

Hall, C.A., Jr., and Prior, S.W., 1975, Geologic map of the Cayucos-San Luis Obispo region, San Luis Obispo County, California: U.S. Geological Survey Miscellaneous Field Studies Map MF-686, 2 sheets, scale 1:24,000.

Hall, C.A., Jr., Ernst, W.G., Prior, S.W., and Wiese, J.W., 1979, Geologic map of the San Luis Obispo-San Simeon region , California: U.S. Geological Survey Miscellaneous Investigations Series Map, I-1097, scale 1:48,000.

Helmberger, D.V., Somerville, P.G., and Garnero, E., 1992, The location and source parameters of the Lompoc, California earthquake of 4 November, 1927: Bulletin of the Seismological Society of America, v. 82, p. 1678-1709.

Jennings, C.W., Jr., 1959, Geologic map of California, San Luis Obispo sheet: California Division of Mines and Geology, scale 1:250,000.

Jennings, C.W., Jr., 1977, Geologic map of California: California Geologic Data Series, Map No. 2, scale 1:750,000.

McCulloch, D.S., 1987, Regional geology and hydrocarbon potential of offshore central California, *in* Scholl, D.W., Grantz, A., and Vedder, J.G., eds., Geology and Resource Potential of the Continental Margin of Western North America and Adjacent Ocean Basins—Beaufort Sea to Baja California: Houston, Texas, Circum-Pacific Council for Energy and Mineral Resources, Earth Science Series, v. 6, p. 353-401.

McCulloch, D.S., 1989, Geologic map of the south-central California continental margin, *in* Greene, H.G., and Kennedy, M.P., eds., California Continental Margin Geologic Map Series, California Division of Mines and Geology, Map No. 4a (Geology), scale 1:250,000.

Ogle, B.A., Wallis, W.S., Heck, R.G., and Edwards, F.B., 1987, Petroleum geology of the Monterey Formation in the offshore Santa Maria/Santa Barbara areas, *in* Ingersoll, R.V., and Ernst, W.G., eds., Cenozoic basin development of coastal California: Englewood Cliffs, New Jersey, Prentice-Hall, Inc., New Jersey, p. 382-406.

Pacific Gas and Electric Company, 1988, Final Report of the Diablo Canyon Long Term Seismic Program: U.S. Nuclear Regulatory Commission Docket Nos. 50-275 and 50-323 (also available at PG&E Geosciences Library).

Pacific Gas and Electric Company, 1990, Response to U.S. Nuclear Regulatory Commission Question GSC-1 Docket No. 50-323 (also available at PG&E Geosciences Library).

Sylvester, A.G., and Darrow, A.C., 1979, Structure and neotectonics of the western Santa Ynez fault system in southern California: Tectonophysics, v. 52, p. 389-405.

Worts, G.F., Jr., 1951, Geology and groundwater resources of the Santa Maria Valley area, California: U.S. Geological Survey Water-Supply Paper 1000, 165 p.

FAULTS AND FOLDS IN THE ONSHORE AND OFFSHORE REGIONS OF SOUTH–CENTRAL COASTAL CALIFORNIA